

Evaluation of Self-reported Unmet Dental Needs in Primary Health Care in Jazan, Saudi Arabia: A Cross-sectional Survey

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ABSTRACT

Aim: The study aimed to estimate the level of self-reported unmet dental needs of patients reporting to primary healthcare dental clinic (PHDC) in Jazan, Saudi Arabia. Additionally, the impact and relation of geographical location, socioeconomic status, and other risk factors were also evaluated for the population considered.

Materials and methods: The questionnaires, divided into three sections, were administered to 400 patients in the Jazan region, comprised of 301 males and 99 females. While the first section dealt with the geographical location, demographic and socioeconomic status of the population, the second estimated the level of self-reported unmet dental needs of the patients in PHDC for two different time periods, last 1 year and the last 3 months. The third section was an assessment for the reasons for unmet dental needs categorized as accessibility, availability, and acceptability. The results were analyzed with Chi-square and logistic regression to identify the association between the level of self-reporting for unmet dental needs and the factors that affect their level.

Results: This present study reports 61.3% and 67.6% of the population were categorized into unmet dental needs for the last 12 and the last 3 months, respectively. The population with unmet dental needs has a significant association with PHDC accessibility factors ($p = 0.021$) and patient acceptability factors ($p = 0.019$). However, no association with dental services availability ($p = 0.055$) was observed. The geographic location, education level, and occupation were significantly associated with higher unmet dental need levels. On the contrary, age, gender, and patient income were not associated with unmet dental need levels in the population assessed.

Conclusion: Lack of accessibility to PHDC, transportation, acceptability, patient understanding, and level of education are the contributing factors as observed and reported by the population evaluated responsible for the high level of unmet dental needs.

Clinical significance: Accessibility and feasibility of PHDC to the local residents is an integral step in addressing the requirement of the population. Further, responsibility lies with the dentist to educate and emphasize the importance of OHC, its influence on overall health and drive the need for regular dental clinic visits within the population.

Keywords: Acceptability, Accessibility, Availability, Dental needs, Primary health care.

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INTRODUCTION

A good standard oral health care (OHC) service is an indicator of the successful health care system and quality of life of the population for the given geography.¹ The report on the Surgeon General 2000 concluded that oral health is an important foundation for general health and well-being.² The accessibility to primary dental care service is an essential factor for improving public OHC, quality of life, and reducing socioeconomic inequality between countries.^{1,3,4} The World Health Organization (WHO) considers oral diseases as a significant health problem.⁴ The reports for unmet health care needs recognize dental health care as one of the highest required care for patients.^{5,6} In 1980, Saudi Arabia (SA) implemented WHO health strategies and declared Primary Health Care Dental Clinic (PHDC) as a fundamental facility to achieve the goals of WHO and for disease prevention.⁷ The inequivalent geographic distribution of PHDC centers is a primary cause for the overload experienced in some centers, thereby causing the reduction of PHDC services to the meet the level of the patient needs.⁷ In 2020, SA has a total of 19,622 dentists who are actively working and engaged within the Ministry of Health (MOH) and other governmental clinics with about 7,583 dentists providing free (OHC).⁸ The availability of OHC providers at the primary health care centre are very important for the healthy dentation and overall well-being of patients.⁹ The government of SA provides free dental services such as preventive

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dental procedures, dental treatments, and referring the patient to dental specialty clinic of MOH and other specialty government clinic.⁸ PHDC is an integrated, accessible health care service where the dentist is responsible to address the majority of OHC needs, treatment and prevention of oral diseases.⁸ In SA, patients' satisfaction and expectations with dental services are documented to have been poorly meet.¹⁰ Only a minor percentage of adult

Saudi Arabian patients are maintaining regular follow-up dental visits and periodic recalls.¹¹ Jazan region is a province of SA at the south-western border. It has a population of 136,5110 Saudi Arabian citizens at 2020.¹⁰ Jazan region has about 146 primary healthcare centers as documented in 2020.¹⁰ The free access OHC services at the Jazan region are still considered underutilized irrespective of the good number of OHC services available.¹² Unmet needs, defined as "the differences if any, between the necessary services provided and actual services received," are best measured and assessed by patients themselves.^{13,14} The main categories for the unmet needs in health care have been classified into three categories: availability of services, accessibility, and acceptability of available service.^{13,15} Hence, the present study aimed to estimate the level of self-reported unmet dental needs in primary care centers in the Jazan region. In addition, it aimed to determine the influence of geographical location, socioeconomic status of the population, and other related risk factors contributing to the unmet dental needs.

MATERIALS AND METHODS

The present study, designed as a cross-sectional survey, employed a self-reported questionnaire among patients of PHDC in Jazan, the south-western province of SA. It was conducted in 2020 for a period of 3 months wherein multistage cluster sampling was performed. The study was divided into three stages to allow better recruitment of the representative population from all over the Jazan region. Stage 1: The Jazan province was divided into four regions as East, West, North, and South. The main city of each region was selected: Al-Dayer city from east region, Sabia city from the west, Baish city from North, and Jazan city from the south region. In Stage 2: One primary healthcare center for each city was randomly selected for sampling. In Stage 3: Patients were selected for interview randomly from the selected PHDC. A sample size of 400 patients was calculated as the required sample size of the study. The participants included in the study were Saudi nationals, adults older than 18 years healthy with mental capability and able to communicate. Only those participants willing to participate in the study were considered. Further, the participants attending the selected dental clinics during the research period, who had their files in the respective centres and had visited the dental clinic at least once for dental treatment were included. Those patients younger than 18 years with mental disabilities, non-Saudis patients, visitors to the centre, and who were not willing to participate were excluded from the study.

The data collection was in the form of questionnaire was structured and designed by the researchers based on previously published literature and modified toward the objective of the study.¹³⁻¹⁵ The questionnaire was divided into three parts and comprised of 12 close ended questions.

The first part of the questionnaire dealt with demographic data, including the location, age, gender, education level, occupation, monthly income, and self-rated oral health status. (Table 1) The second part focused on data collection based on the self-reported unmet dental needs at 3 months and 1 year time period of the participants. The third part mainly addressed the contributed risk factors for unmet dental needs of the participants, broadly divided into availability, accessibility, and acceptability (Table 2). The questionnaire was translated to the Arabic language by the principal investigator. It was reviewed and revised by independent translation experts and by the other investigators. The research protocol approval was obtained from the Ethics Committee of

Table 1: Part one of the questionnaire includes the demographic questions

Location	Al-Dayer city / Baish city / Sabya city / Jazan city
Gender	Male / Female
Age	Less than 20 / 20–34 / 35–44 / 45–60 / > 60
Education level	Illiterate / Elementary or intermediate school / High school / University
Occupation	Govt. employee / Laborer / Private sector / Student / Unemployed
Monthly income	< 3,000 / 3,000–7,500 / 7,500–10,000 / > 10,001 /
Self-rated oral health status	Very good / Good / Poor / Very poor / Don't know /

Table 2: Part three of the questionnaire includes the contributed risk factors for unmet dental needs of the participants

Accessibility factors	Cost of transportation and financial limitation Transportation not available Distance
Availability factors	The dentist not available Material/equipment not available Long waiting time Limited working time
Acceptability	Feel like they do not have dental problem I think dental treatment is un-necessary Afraid of dentist Bad experience Busy with family responsibilities

Jazan University. Further, a request for research conductance was approved by MOH dental administrative at Jazan region. Patients were informed about the purpose of the study and written consent for participation was obtained. The results obtained were tabulated and analyzed.

Chi-square and logistic regression was used to identify the association between the level of self-reporting for unmet dental needs and the risk factors of unmet dental needs. The significance: p -value < 0.05 considered for significance and logistic regression with 95% CI.

RESULTS

The total study sample comprised of 432 study participants out of which 79.9% were males and 20.1% were females. Table 3 presents the socio-demographic differences of selected patients and number of the patient with unmet dental needs at different geographical locations, gender, age, education level, occupation, and incomes. About 61.3% of the study sample reported an unmet need for dental services in the last 12 months and 67.6% of the study sample were at unmet dental need in the last 3 months. The unmet dental need was significantly associated with geographical location, the highest being in Al Dayer followed by Sabya ($p = 0.0001$), level of education ($p = 0.01$), type of occupation ($p = 0.004$), and self-rated oral health status ($p = 0.038$) (Table 3). However, it was found the patient's unmet dental needs were not statistically associated with the gender ($p = 0.517$), age ($p = 0.061$) or patients income level ($p = 0.291$) (Table 1, Fig. 1).

Table 3: Descriptive statistics of study population and the association with unmet need

Variable		Total sample number	Number self-rated unmet need	Percentage self-rated unmet need	Chi-square	p-value
Location	Al-Dayer city	110	89	80%	29.290	0.0001
	Baish city	97	52	53%		
	Jazan city	117	56	47%		
	Sabya city	108	68	63%		
A significant association between geographic location and unmet dental need						
Gender	Male	345	209	60%	0.420	0.517
	Female	87	56	64%		
No association between gender and unmet dental need						
Age	Less than 20	154	83	53%	9.005	0.061
	20–34	157	108	68%		
	35–44	89	57	64%		
	45–60	29	16	55%		
	>60	3	1	33%		
No association between patient age and unmet dental need						
Education	Illiterate	10	4	40%	11.374	0.010
	Elementary or intermediate school	31	25	80%		
	High School	240	135	56%		
	University	151	101	66%		
A significant association between occupation and unmet dental need						
Occupation	Govt. employee	104	72	69%	15.428	0.004
	Laborer	3	1	33%		
	Private sector	92	49	53%		
	Student	174	97	55%		
	Unemployed	59	46	77%		
A significant association between occupation and unmet dental need						
Monthly income	<3,000	226	138	61%	3.736	0.291
	3,000–7,500	98	54	55%		
	7,500–10,000	57	40	70%		
	>10,001	51	33	64%		
No association between patient income and unmet dental need						
Self-rated oral health status	Very good	67	32	47%	10.121	0.038
	Good	155	95	61%		
	Poor	56	35	62%		
	Very poor	11	10	90%		
	Don't know	143	93	65%		

A significant association between self-rated oral health and unmet dental need

The unmet dental need has a significant association with PHDC accessibility factors ($p = 0.021$) and acceptability ($p = 0.0019$). The accessibility factors to PHDC affected 31.4% of the study sample citing the cost of transportation and financial limitations, 17.4% were affected because of the long-distance and 12.2% were affected due to lack of transportation. The patient's acceptability factors affected 25% of the study sample as patients reported to be busy

with family responsibility, 11.1% thought the dental treatment was unnecessary, 10.4% were afraid of dentistry, 9% of patients had previous bad dental experiences, and 5% felt like they did not have dental problem. On the contrary, the unmet dental needs has no association with dental services availability ($p = 0.055$). However, 21.2% of the study sample reported limited working hours of PHDC, 15% of patients mentioned long waiting time, and unavailability

of dentist or dental staff, respectively. In addition, 9% of the sample further reported the shortage of materials or equipment requirement (Table 4). Additionally, it was also observed that the dental clinic visits number was significantly associated with the education level ($p = 0.004$) (Table 5).

The binary logistic regression was performed with age and gender as covariates in the present study. It revealed that reducing the cost of transportation, distance, and providing transport would increase dental visits by four times ($OR = 0.28$). Making dental treatment acceptable by removing the barriers and educating the patient to set higher priority for OHC would drastically improve patient visits by almost 10 times. ($OR = 0.12$). On the contrary, improving the availability factors for dental service did not seem to have an effect in improving patients' unmet needs ($OR = 0.89$) (Table 6).

This study observed that the level of unmet dental needs in the Jazan region accounted to about 60%. The acceptability of patients to dental treatment and accessibility to the dental service were reported as the limiting factors responsible for the unmet dental needs of the patients, thereby restricting the utilization of the available free dental services in the Jazan region, SA.

DISCUSSION

The current study observes a significant percentage (67.6%) of Jazan population presenting with unmet dental needs for the last 3 months. The study also quantifies the percentage of the unmet dental need to 61.3% for the year 2020. The research question probed in the present study on evaluation of unmet

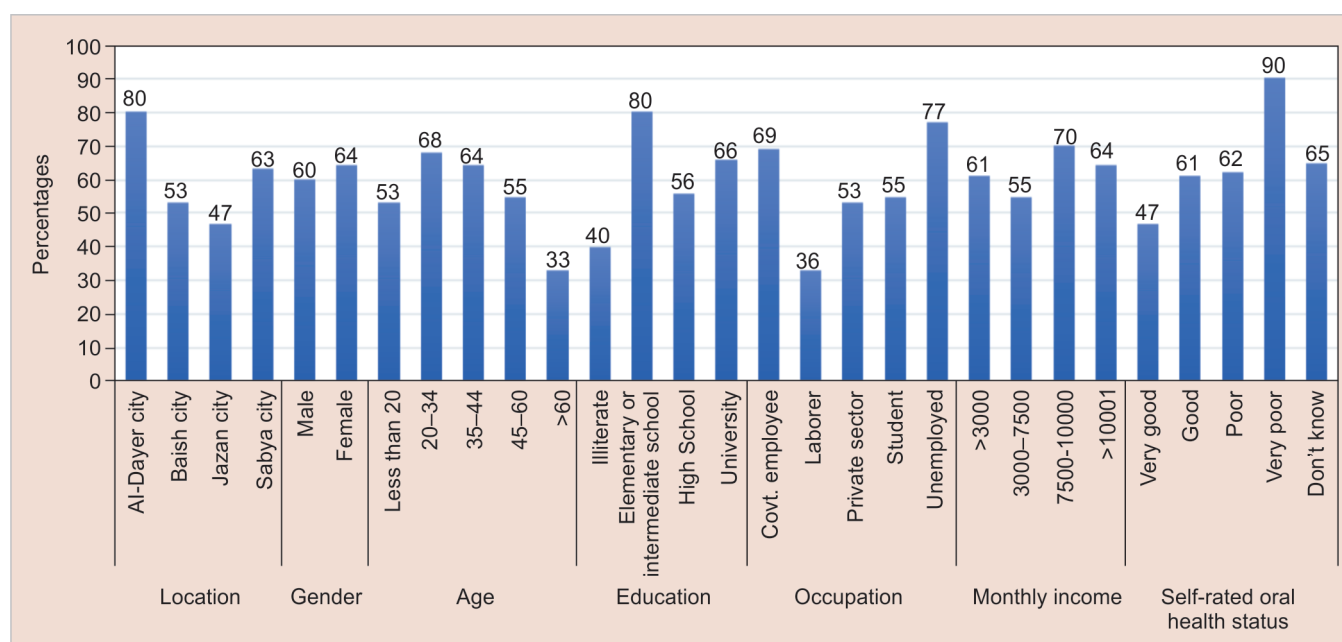


Fig. 1: Percentage of the self-rated unmet dental need related to geographical location, socioeconomic status, and other factors

Table 4: Accessibility, availability, and acceptability risk factors associated with unmet dental needs

Perceived barriers	The number of people with unmet need		Chi-square	p-value
Accessibility				
Cost of transportation and financial limitation	136	31.4%	18.203	0.021*
Transportation not available	53	12.2%		
Distance	76	17.4%		
Availability				
The dentist not available	66	15%	72.1588	0.055
Material/equipment not available	42	9%		
Long waiting time	65	15%		
Limited working time	92	21.2		
Acceptability				
Feel like they do not have dental problem	22	5%	57.179	0.019*
I think dental treatment is unnecessary	48	11.1%		
Afraid of dentist	45	10.4%		
Bad experience	39	9%		
Busy with family responsibilities	108	25%		

*p-value significant at $p < 0.05$, Chi-square test applied

Table 5: Patients dental visits related to their education level

Level of education	First visit	Infrequent visits	Regular visits	Chi-square	p-value
Illiterate	0	10	0	18.959	0.004
Elementary and intermediate	4	27	0		
High School	17	192	31		
University	27	104	20		

Table 6: Logistic regression model for patient perceived barriers

Factors	B	p-value	Adjusted OR	CI (95%)	
				Lower	Upper
Accessibility	4.02	0.001	0.28	0.10	0.40
Availability	0.86	0.100	0.89	0.56	1.28
Acceptability	3.02	0.001	0.12	0.04	0.45

dental needs is a prevalent problem in many countries across the globe.¹⁶⁻¹⁸ On comparing the present study results with the study by Davis MM et al. in Eastern Oregon, USA, reported 28% of them had unmet dental needs. Nearly 46% of the patients had not visited a dentist in the last year as disclosed by the authors.¹⁹ Furthermore, Abeer Al-Jaber et al. reported in their study that 61% of studied population were unable to meet the dentist for the last one year in the Riyadh, SA.²⁰ On analysis of the possible reasons for the unmet dental needs in the Jazan region, accessibility to the dental clinics and patients' acceptance for dental treatment were found to be of pivotal in nature. Cumulatively, studies analyzed various reasons for unutilized free dental treatment at government-provided OHC facilities and compared them to the other studies. Shortage of dental services availability to the population was the most prominent factor as reported among studies.^{12,13,20} The patients in the Jazan region were well aware of their needs for dental treatment. In the current study, it was observed that they were able to self-rate and assess their needs, the results were in accordance of another study by Varenne B et al. where the patients visited the dentists on need for example for pain and its treatment.²¹ Higher the patients education level, better understanding of the importance of OHC in prevention of oral diseases was recorded.²² On the contrary, inadequate awareness and knowledge on OHC, limited the patients' recognition and reporting to the dental treatment.^{23,24} Present study reported that the patients did not prioritize OHC and they spent relatively less time and expenses on their dental requirements. In addition, there was no difference found between the level of unmet dental needs and the different financial status of the patients. Further, it was noted that the financial limitation affects significantly the unmet dental need of that proportion of patient's whose OHC is self-paid and depends on the type of insurance and financial support.^{23,24} The Saudi Arabian government efficiently supports the health care system and provides free dental and medical health care services to its population. This decision from the government encourages the citizens to avail the OHC needs at dental clinics and services. However, education and awareness among the population plays an important role to practice OHC. Hence, the researchers do suggest modifying, prioritizing, and improving the value based education on OHC from primary school level. The access to dental care is governed by socio-economic and cultural factors.^{25,16} The health care providers in SA provide OHC even in suburbs at different primary health care clinics,

dental centers, and hospitals. The government is working to collaborate and synchronize the availability of both the medical and dental services within a single premise for the convenience of the patients. Such a requirement led to the establishment of OHC clinics at a distant location from the local residences of the population thereby contributing to the increasing need for health care of the patient. The OHC services and dental clinics, therefore should be located at amicable distances, distributed among the concentrated residence pool, should be approachable and accessible by patients. Though providing free transportation to the PHDC could reduce the need for dental treatment, its implementation is yet to be analyzed. Larger sample size with an increased representation of all areas of the Jazan region would lead to better translation of results of the study. Hence, this was a major limitation noticed. Further unequal gender distribution of sample, with reduced female patients owing to the segregated departments of the primary health care, limited the equal distribution and collection of data. Also, as the data was limited to PHDC alone, it may not represent the total population of Jazan region. Further, the limited number of evidence and investigating researches in SA and the Jazan region about the unmet dental needs reduce the chance of comparing and contrasting the results of the present study.

CONCLUSION

Based on the observations of the present study, it can be concluded that the population visiting the PHDC in the Jazan region are at a higher level of unmet dental needs. The contributing factors responsible for such an impression are related to geographic factors like accessibility and transportation to PHDC and patient related factors such as acceptability, understanding, and level of education. On the contrary, unavailable dental service, dentists, materials, and treatment time have reported with a limited impact on the unmet dental needs. Further, dentists embody a crucial role and ought to improve the patients' management and latter's experiences at the dental clinics.

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